HURRICANE SANDY INCIDENT OPERATIONAL PHASES BAYWAY REFINERY – PHILLIPS 66 December 2012

This document is an outline for moving site response from an active recovery to passive recovery. Stakeholder signatures signify that the site was evaluated, and that each stakeholder concurs that the criteria for transition from Phase One to Phase Two, as laid out in this document, have been met; as it pertains to the Navigatable waterways.

This document is not to determine damage or injury to the environment, habitat, or natural resources. This document is not a guideline for final clean-up endpoints.

The USCG is engaged in oil and hazardous material response under Emergency Support Function #10 at PHILLIPS 66 BAYWAY REFINERY. The Unified Command is monitoring the Responsible Party led clean-up efforts at PHILLIPS 66 BAYWAY REFINERY to ensure that they conduct these operations in accordance with the Area Contingency Plan.

This document does not address targets covered by Emergency Support Function #3 funding.

Approved By:

FOSC/- USCG:	Signature:	Date:
Stephen R. Miller	Stoffethe	OFDECIZ
SOSC:	Signature:	Date:
Dan Potas hnich	Dan Potent	12/7./12
RP: Hope Gray	Signature: A.T. Cray	Date: 12 - 7-12
/ /		

Cooperating agencies:

US EPA:	Signature: , /	Date:
Kelli Lucarino	Man	12/7/12
DOI:	Signature	Date:
CLAY STERN -USFUS	L'ayMichael Stern	12/7/12
NOAA:	Signature:	Date:
	ED Cavine	12/9/12

Phase One: Active Recovery

 Floating oil in a thickness allowing for gross recovery by mechanical means, such as self-contained skimmers (e.g.: Marko skimmers) or vacuum truck assisted skimmers (e.g.: drum skimmers)





Marko skimmer

Drum skimmer

If, in the determination of the equipment operator and the area supervisor, the
thickness can not be enhanced by the use of hard boom such that the skimming
operation is practical, a request will be made to the Incident Commander to move
the site from Phase One to Phase Two. Upon agreement by the Incident
Commander, with consultation with the state and federal On-Scene Coordinators
(or their representatives), the area may be moved into Phase Two recovery.

Phase Two: Passive Recovery

Floating oil film in a thickness generally described as "sheen" and "rainbow"
which cannot be concentrated to a thickness that permits practical mechanical
recovery will be in a Phase Two status.

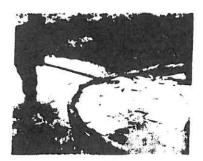
BONN AGREEMENT OIL APPEARANCE CODE

CODE	Description	Layer thickness interval (µm)	Litres per km²
1	Sheen (silvery/grey)	0.04 - 0.30	40 – 300
2	Rainbow	0.30 - 5.0	300 – 5000
3 .	Metallic	5.0 – 50	5000 - 50,000
4	Discontinuous true oil colour	50 – 200	50,000 - 200,000
5	Continuous true oil colour	200 - more than 200	200,000 - more than 200,000

Oil collection in Phase Two will be by means of synthetic absorbent materials.
These materials include sorbent boom (so-called "sausage boom"), sorbent sweep
and sorbent pads, but does not include so-called "loose" sorbent (without
expressed permission from state and federal OSCs).







Sorbent Boom

Sorbent Sweep

Sorbent Pads

- Sorbent Use: Best Management Practices
 - Boom and sweep will be visually monitored on a schedule determined by the recovery rate of the material.
 - Only partially or fully oil saturated materials will be changed.
 - The location of deployed sorbent will be recorded until such time that the material is permanently removed from the impact area.
 - In waterways with current, boom and sweep with be supported, down current, with hard boom.
 - Sorbent pads will not be deployed without active and on-site maintenance at all times.
 - Sorbent pads will not be deployed in waterways with current, unless hard boom is deployed as a barrier.
 - All sorbent pads will be collected at the end of each day and will not be left unattended overnight.

Phase Three: Natural Attenuation

- Oil film or "sheen" is not observed emanating from the subject area after either two significant rain events or after a period of two weeks will be considered in Phase Three.
- In Phase Three, both hard boom and sorbent materials may be removed.
- Each area transitioning from Phase Two to Phase Three will be inspected and approved, in writing, by the state On-scene Coordinator or his/her representative, with concurrence of the US Coast Guard On-Scene Coordinator or his/her representative.

			ICS	209 (C)il Spill) - Ir	nci	ident Status S	Summa	iry			CONTROL OF THE	
Incident:	Hurrica	ne Sandy				1	repared By:	Evans,			at 1	1/15/201	2 11:45
Period:	Period	18 (11/16/	2012 06:0	0 - 11/2	2/2012 06:00	V	ersion Name:	11/15/2	2012 @ 11	1:30	- PGE	Ξ	
		Spill Statu						Eq	uipment l	100100000000000000000000000000000000000	Transport Name of Street)
Source St	atus:	Rer	naining pote		9		Туре		Ordered		ilable aged	Assigned	Out-Of- Service
Secured	. 4		Rate of spill				Boom		0		1,000	18,800	
O Unsecure	ed	Amounts be	low measure				Crane	***************************************					2
	- III I		Last 24 H		Total				0		0	20	
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and the second s	То	tal spilled pro	duct accoun	ted for:	1	185						######################################	
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Refinery Land		2	28.5	C		0							<u> </u>
Cemetary Land	j [8	38.5	0		0							ļ.,,,,,,,,
Domestic Trade	e		0	0		0							
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	(Shorelin	ne Impacts			100					i.		ļ
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.ight			0	0		0	Service Co.	re				o in Tot	al People
/ledium			0	0		0	Organizat	tion	People in People the Field Cmd			Post O	n Scene
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	Total		0	0	Million A. Come silve a communication	0	State/Prov.			0		0	(
		Wildlife	Impacts)		Local			0	Ulli III ALIITSIII	0	(
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Туре	Capture	Cleaned	Released	DOA	Euth. Othe	Myter pre-	Clean Harbors & Su	bs	**************************************	75)	2	77
Bird	25		12	102	36	interest in	All Other Contractor	S	A PARTICION AND A PARTICION AN	43	TOTAL PIETERS AND	3	46
/lammal		9 0	0	9	0					- Secondario		1	C
Reptile		36	13	2				AMERICA DE LA CASA DE		and a second	assertius (ITA)		C
ish	***************************************		i		E SE					· ·			C
Other (cat)		1		1					Total Resp	onse l	Person	nel:	142
TO ANY OUR TIPE AT THE PROPERTY OF THE PARTY						1			Special I	lota			West States
Total	30	150	25	114	36	0			Special I	votes	5)	
		Safety	/ Status										
	Туре		Last 24 H	ours	Total								
Responder Inju	ry			0		10							
ublic Injury				0		0							
ther				0		0							
*Mass Balance	estimates	s are based or	n common ru	les of thu	mb for natural ar	nd c	chemical dispersion,	evaporatio	on, skimming	g and	burning	g efficiency.	
ICS 209	(Oil Sp	ill) - Incide	nt Status S	Summai	y Printe	d:	11/16/2012 08:44	Page 1	of 1	© 19	97-20	12 dbSo	ft, Inc.

Incident:	Hurrican	o Sandy	Response	209 (C)il Spil		dent Status Sun repared By: Ev	ans, Phil		1/13/201	2 10.00
Period:			g" (11/13/	2012.00	3:00 11			/13/2012 @ 11			2 10.00
Period;					5:00 - 11	/14/2 V	ersion Name: 11				
0 0			s (Estimat		.)			Equipment I)
Source Sta	atus:	Rer	naining poter		Э		Туре	Ordered	Available /Staged	Assigned	Out-Of Service
Secured		2 2 3	Rate of spill				Boom	0	A	18,800	
O Unsecure	d A	mounts be	ow measure		100000	-1	Crane			2	2
Total Volume S	Poilled		Last 24 F	ours 0	Tot	185	Vacuum Truck	0	4	21	Î
//////////////////////////////////////		D-I	/F-1:		.//////	7///////	Vessel	0	1	11	1
Morses Creek	//	ss Baland	ce (Estima		///////	30	Lighting		13	37	7
Refinery Land	& Reservoir			0			Equipment: Heavy	2	1	2	2
Cemetary Land	i			0		10000	Skimmer		11	21	
Domestic Trade				0		5	Frac Tank		2	10)
310 Tank				0		30	Roll Off Box	-		100	I
				0		0	Tion on box				1
				0		0					
	Total	spilled pro	duct accoun	ed for:		185					
	Waste	Manage	ment (Est	mated)							
Туре		Recovered		red	_	osed					ļ
Morses Creek &		recovered	31	C		0					
Refinery Land			29	C		0					
Cemetary Land			86	C)	0					<u> </u>
Domestic Trade	9		0	C		0					
310 Tank			2	C		0					
TOTAL			148								
		Shorelin	ne Impacts		7						
Degree		Onorom	ic impacts		Remair	ning to					
of Oiling		Affected	Clear		be Cle						
/ery Light			0	0		0		Personnel F	Peculicas	7	
_ight			0	0		0			e in Peop	le in Tot	al People
Medium Heavy			0	0	0		Organization	the Fi	eld Cmd.	Post 0	n Scene
	Total		0	0	0		Federal		0	0	
	rotar		0			9	State/Prov.		0	0	
		Wildlife	Impacts)		Local RP		2	14	1
Type	Continue	Cleaned	Released	DOA	Died in		MSRC/Clean Harbors &	Subs	118	3	12
Type Bird	Captured 252	Cleaned 114		102	Euth.	Other	All Other Contractors		26	3	2
Mammal	13			9			Control of the Contro				
Reptile	38			2							
Fish					- Anna					Î	
Other	1	1		1				Total Resp	onse Perso	nnel:	16
								Special	Notes		
Total	304	153	0	114	37	0		Opecial	10.03		
		Safety	Status)						
	Туре		Last 24 H	ours	Tota	al					
Responder Injui	У		11110 22 (1072	0		10					
Public Injury				0		0					
Other				0		0					
Mass Ralance	estimates	ere based a	n common ri	les of thu	mh for no	tural and	chemical dispersion, eval	noration skimmin	and humin	a efficiency	

		(ICS	209 (0	Oil Sp	ill) - Inc	ident Status	Summai	у			
Incident:	Hurrio	cane	e Sandy	Respons		•		Prepared By:	Lam, Pa		at 1	11/8/2012	10:23
Period:	Perio	d 10) "Workir	ng" (11/8	2012 06:	:00 - 11	/9/201	Version Name:	11/8/20	12 @ 094	5 - PGE		
		S		ıs (Estima					Equ	ipment l	Resources	3	
Source St	tatus:		Rer	maining pot		е		Туре		Ordered	Available /Staged	Assigned	Out-Of- Service
Secured				Rate of sp				Boom		12,000			
O Unsecure	ed	A	mounts be	low measu				Crane		,	1,100	2	
				Last 24		Т	otal	J		1	2		
Total Volume	777				0		18	Vessel		2			
	1/1.	Mas	ss Balan	ce (Estim	ated*)			1: 1: 1:					
Morses Creek	CONTRACTOR OF	voir	×1		0		3				2		
Refinery Land			100		0		31				477	3	
Cemetary Lan	y Land 0 c Trade Reservoir 0							Skimmer			17		
310 Tank	ie nesei	VOII			0		30	Frac Tank				16	
OTO TAIK	10 Tank 0							Roll Off Box				104	
	0												
	Swidth.												
	Т	otal	spilled pro	duct accou	nted for:		18	5					
	(Wa	ste	Manage	ment (Es	timated)				\				
Туре			Recovered		tored	1	posed						
Morses Creek	& Res			28	(D		ō					
Refinery Land				22	(O C	(ō					
Cemetary Land	d			67	(D	(<u> </u>					
Domestic Trad	е			0	((0					
310 Tank				1	(D	()					
TOTAL				118		7							
			Shorolir	ne Impac		1		1					
Degree			Shorem	іе ппрас	.5	Rema	ining to						
of Oiling		Α	ffected	Cle	aned	be C	leaned						
/ery Light				0	0		(7.18 (2.78)
ight				0	0		(Per		esources	Jaja Tata	I Decele
Medium				0	0		(Organiza	ation	the Fie	in Peop	Post On	Scene
Heavy				0	0	-7	(Federal			0	0	(
	Total			0	0		(State/Prov.			0	0	(
			Wildlife	e Impacts)		Local		İ	0	0	(
		-	vviidine	impacts	T	Died in	n Facility	RP			15	30	45
Type	Captur	ed	Cleaned	Released	DOA	Euth.	Other	Contract Personne	1000 900 2000		325	7	332
Bird		229	99		94	3	6	Volunteers					(
/lammal		6			6		1						(
Reptile		31	27		4								(
ish													(
Other		1			1				17	otal Resp	onse Persor	nnel:	377
:4										Special N	Votes	7	
Total	2	267	126		105	36	6 C	Observed 2 Offed	Deer (1 Buc	k and 1 Do	e) but was u	nable to cap	ture or
		_	Safet	Status)		relocate. Antler Ri Other: Domestic C	Cat				
er visa jago jijo	Туре		Jaiety	Last 24	Hours	To	ital	Injuries 1) cut fing picking up bags ar	er 2) finger a	brasion 3)	11-6-2012 M	luscle strain	while
Responder Inju					0		4	picking up dags ar	with hands (f	irst aid)	1-7-2012 PUI	icture woull	u wille
ublic Injury					0		0	570 300					
Other					0		0						
								chemical dispersion					
ICS 209	(Oil S	pill)	- Incide	nt Status	Summa	ry I	Printed:	11/8/2012 10:23	Page 1	of 1 (© 1997-20	12 dbSof	t, Inc.

				ICS	209 (0	Dil Spil	I) - Inc	dent Status S	Summa	ry			
Incident:	Hurri	can	e Sandy	Response				Prepared By:	Lam, P		at 1	1/6/2012	17:40
Period:	Perio	d 9	(11/7/20	12 06:00 -	11/8/20	12 06:0	(0) V	ersion Name:	11/6/20	12 @ 173	80 - PGE		
		S	pill Statu	s (Estimat	ted)				Eq	uipment F	Resources		
Source St	atus:		Ren	naining pote	ntial: None	Э		T		Ondored	Available	Assissed	Out-Of-
Secured				Rate of spill	age: N/A			Type Boom		Ordered	/Staged 800	Assigned 9,000	Service
O Unsecure	d	Α	mounts be	low measure	d in: barre	el(s)				0	800		
				Last 24 H	lours	То	tal	Crane				2	L
Total Volume S	Spilled				0		185			4	0		
	//.	Mas	ss Balane	ce (Estima	ted*)	"/////		Vessel			6		
Morses Creek	& Rese				0	1/////	30	Lighting		10	11	29	
Refinery Land	finery Land 0							Equipment: Heavy				3	
Cemetary Land	d				0		90	Skimmer			18	26	
Domestic Trad	le Rese	rvoir		32.7.3	0		5	Frac Tank				16	i
310 Tank					0		30	Roll Off Box	1	80		24	1
					0		0	TOIL OIL BOX					
					0		0						
			and a										
		Total	spilled pro	duct accoun	ted for:		185						
	1/1/	aeto	Managa	ment (Est	imated)								
Туре	AA	-	Recovered		ored) Die	osed						
Morses Creek	& Res	+-	Recovered	25	orea C		oseu 0						
Refinery Land	41103	+		18	0		0						
Cemetary Land	1	-		57	0		0						
Domestic Trade		+-		0	0		0						
310 Tank		-		1	0		0						
TOTAL	-	-	HINE E LINE -	101									
TOTAL				101		J							
			Shorelin	e Impacts)							1
Degree	T		. 20-24			Remai							
of Oiling		F	Affected	Clear		be Cle							<u> </u>
Very Light				0	0		0		Pe	rsonnel R	esources		
Light				0	0		0			People			al People
Medium				0	0		0	Organiza	tion	the Fi			n Scene
Heavy	T-1-1			0	0		0	Federal			0	0	(
	Total			0	0		0	State/Prov.			0	0	(
			Wildlife	Impacts)	Nation 1	Local	to the second se		0	0	(
				111111111111111111111111111111111111111		Died in	Facility	RP			15	37	52
Type	Captu	red	Cleaned	Released	DOA	Euth.	Other	Contract Personnel			424	5	429
Bird		220	92	0	92	36		Volunteers					(
Mammal		5			5								(
Reptile		26	23	0	3								(
Fish		Ì						1071					(
Other		1			1					Total Resp	onse Perso	nnel:	481
										Special I	Notes	7	
Total		252	115	0	101	36	0	Observed 2 Oiled	Deer (1 Bu	ck and 1 Do	e) but was u	inable to ca	pture or
			0-1	Chebus				relocate. Antler Ric Other: Domestic C		ın, 11/3/201	2, surveyed	herd.	
	Type		Safety	Status Last 24 H	oure	Tot	al	20					
Responder Inju	Type			LdSt Z4 H	ours 0	101	0						
Public Injury	. ,	-			0		0						
Other		-			0		0						
o di loi					9		9						
*Mass Balance	estima	ites a	re based o	n common ru	les of thu	mb for na	itural and o	chemical dispersion,	, evaporation	on, skimmin	g and burnir	g efficiency	
140000000000000000000000000000000000000											On Committee of the Com		
IUS 209	OII ?	Spill) - incide	nt Status	Summa	ry	Printed:	11/6/2012 17:40	Page 1	1 01 1	© 1997-2	u i z abSo	π, Inc.

				ICS	209 (C	Dil Spil	I) - Inci	ident Status S	Summai	ry			1 (6)
Incident:	Hurric	ane S	Sandy F	Response	,			repared By:	Lam, Pa		at 1	1/6/2012	11:22
Period:	Period	V" 8 t	Vorking	" (11/6/20	12 06:0	0 - 11/6	/2012 V	ersion Name:	11/6/20	12 @ 113	30 - PGE		
		Spil	II Status	s (Estimat	ted)				Equ	uipment F	Resources	3)
Source St	atus:		Rem	naining pote	ntial: None	Э		Time		0-11	Available	A!	Out-Of-
Secured				Rate of spill	age: N/A			Type Boom		Ordered 0	/Staged 800	Assigned 9,000	Service
O Unsecure	ed	Amo	ounts belo	ow measure	d in: barre	el(s)		Crane		U	000		
				Last 24 H	lours	То						2	1
Total Volume :	Spilled				0		185			4			
	//, 1	Mass	Balanc	e (Estima	ited*)			Vessel			6	1.0	1
Morses Creek	& Resen	voir			0	akada akada akada aka	30			10	11		
Refinery Land	and the same of th				0		30					3	3
Cemetary Lan	The state of the s				0		90	Skimmer			18	26	ò
Domestic Trad	le Reserv	oir			0		5	Frac Tank				16	3
310 Tank					0		30	Roll Off Box	i	80		24	
					0		0						
					0		0						
	T	otal sp	illed prod	duct accoun	ted for:		185						
	Wa	ste N	lanage	ment (Est	imated))							
Туре			covered		ored		osed		<u>-</u>	dnin			
Morses Creek	& Res			25	C		0						
Refinery Land				18	C)	0						
Cemetary Land	d j			57	C		0						
Domestic Trad	е			0	C		0						
310 Tank	ĺ			1	C		0						
TOTAL				101									
		S	horelin	e Impacts	3)							
Degree of Oiling		Affe	ected	Clear	ned	Remai be Cle							1
Very Light	·			0	0		0						
ight				0	0		0		Per	sonnel R	esources		
Medium				0	0		0	Ossasina	People			al People	
Heavy	1			0	0		0	Organization Federal		the Field Cmd		0	n Scene
	Total			0	0		0	State/Prov.			0	0	
								Local		-	0	0	
			Wildlife	Impacts)		RP	MILLS TO THE TOTAL THE TOTAL TO AL TO THE TO	1	15	37	5
Туре	Capture	ed C	leaned	Released	DOA	Died in Euth.	Facility Other	Contract Personnel		-	424	5	42
Bird		200	86	0				Volunteers					
Mammal	<u> </u>	2			2								
Reptile	1	18	18	0				Land of Control of Con			·		1
Fish		-	10		0								
Other		1			1					Total Resp	onse Persor	nnel:	48
									**********	Special I	Votes		
Total	2	221	104	0	81	36	0	Observed 2 Oiled relocate. Antler Ric	Deer (1 Bud	ck and 1 Do	e) but was u	nable to ca	pture or
			Safety	Status				Other: Domestic C		, 1 1/J/ZU 12	L, Surveyeu I	ioiu.	
	Туре			Last 24 H		Tot	al						
Responder Inju	iry				0		0						
Public Injury		uper comme			0		0						
Other					0		0						
*Mass Balance	e estimate	es are	based or	ı common rı	ules of thu	ımb for na	atural and o	chemical dispersion,	, evaporatio	n, skimmin	g and burnin	g efficiency	a:
ICS 209	Oil S	pill) -	Incide	nt Status	Summa	ry	Printed:	11/6/2012 11:22	Page 1	of 1	© 1997-20	012 dbSc	ft, Inc.

				ICS	209 (0	Dil Spi	ll) - Inc	ident Status	Summa	ry					
Incident:	Hurri	ican	e Sandy	Response)		F	Prepared By: Lam, Pat				at 11/4/2012 15:44			
Period:	Perio	od 6	"Working	" (11/4/20	012 06:0	0 - 11/5	5/2012 \	/ersion Name:	11/4/20	12 @ 153	0 - PGE				
		S	pill Statu	s (Estima	ted))			Equ	uipment F	Resources				
Source St	tatus:		Rer	maining pote	ntial: None	Э		_			Available		Out-Of-		
Secured				Rate of spil	lage: N/A			Туре		Ordered	/Staged	Assigned	Service		
O Unsecure	ed	Α	mounts be	low measure	ed in: barre	el(s)		Boom		0	1,200	8,600			
				Last 24 I	Hours	To	ital	Crane				2	L		
Total Volume	Spilled				0		185	Vacuum Truck		0	0	27			
	///	Mas	ss Baland	ce (Estima	ated*)	'/////	////////	Vessel			2	9			
Morses Creek	& Rese				Ol	//////	30	Lighting			13	23			
Refinery Land					0		30	=	,		Î	3			
Cemetary Lan	d				0		90	Skimmer			27	13			
Domestic Trad	le Rese	rvoir			0		5	Frac Tank				16			
310 Tank					0		30	Roll Off Box	l	84		23	L		
					0		0	TON ON BOX				20			
					0	YMD AIR	0						<u> </u>		
		Total	spilled pro	duct accoun	ited for:		185								
		acto	Managa	ment (Est	imated)	10000									
Туре	VV		Recovered		ored		oosed								
Morses Creek	& Res	+-	Recovered	20	orea C		osea 0								
Refinery Land	4 1103	 		12	C		0								
Cemetary Land	1	+-		35	0		0			T					
Domestic Trad		+	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	0	1	0		T	Î					
310 Tank		+		1	0	1	0								
TOTAL		\vdash		68			-								
			Shorelin	ne Impacts	S)			Ť	1					
Degree of Oiling		A	Affected	Clea	ned	Remai be Cle									
Very Light				0	0		0					7000			
Light				0	0		0		Per	sonnel R	The second second				
Medium				0	0		0	Organiza	etion	People the Fie			al People Scene		
Heavy				0	0		0	Federal	20011	110110	0	0	0		
10	Total			0	0		0	State/Prov.		-	0	0	0		
						1		Local			0	0	0		
		7	Wildlife	Impacts	1			RP			15	37	52		
Туре	Captu	red	Cleaned	Released	DOA	Died in Euth.	Facility Other	Centract Personnel	1		425	4	429		
Bird	J = p i s	195	83	0	76		Otrici	Volunteers					0		
Mammal		2			2								0		
Reptile	_	14	14	0	0					1			0		
ish										Ì			0		
Other		1		A STATE OF THE STA	1				0.9	Total Respo	nse Person	nel:	481		
										Special N	lotes	7			
Total		212	97	0	79	22	0	Cbserved 2 Oiled	Deer (1 Bud	k and 1 Doe	e) but was ur	nable to cap	oture or		
			0-6-1	01-1		1	e distribution	relocate. Antler Ri- Other: Domestic C		n, 11/3/2012	, surveyed h	erd.			
	Type		Sarety	Status Last 24 H	oure	Tot	al								
Responder Inju				Lust Z4 F	0	100	0								
Public Injury	.,				0		0								
Other					0		0								
COLUMN CO					<u> </u>								- 1		
Mass Balance	estima	tes a	re based or	n common ru	les of thu	mb for na	tural and o	chemical dispersion	, evaporatio	n, skimming	and burning	efficiency.			
ICS 200	(Oil s	Spill) - Incide	nt Status	Summai	v	Printed:	11/4/2012 15:44	Page 1	of 1	9 1997-20	12 dbSol	ft. Inc		
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www.micro-blaze.com 800-626-6598 713-691-6468

Application Rates for Micro-Blaze® Emergency Liquid Spill Control

For pure product spills [no water]: Determine amount of contamination by volume. 10% of that volume is the amount of Micro-Blaze® Emergency Liquid Spill Control concentrate to apply, diluted. (example: 350 gallons of pure product contamination, have 35 gallons of concentrate.) Apply diluted to the specific percentage rate per contamination parameters (age of spill, type of contaminant, volatility, viscosity, etc.) Apply it forcefully to pure product spills with good pressure, so the oils will be thoroughly mixed with the Micro-Blaze® solution. Take care not to splash spill onto nearby equipment, personnel, etc.

For contaminated slurries, tanks with product and water, etc.: Determine total volume of contamination, including water. Then determine a general volume of the contaminant in the slurry. 10% of the contamination volume is the amount of Micro-Blaze[®] Emergency Liquid Spill Control to apply. Dilute it as needed, taking into consideration the present volume of water already in the slurry.

Example: you have 2500 gallons of slurry to remediate. You determine approximately 500 gallons is contamination and 1200 gallons is water, with the remainder dirt or inorganic material. You will dilute 50 gallons of Micro-Blaze® Emergency Liquid Spill Control to a 3% solution. Since you already have 1200 gallons of water, you will need to add 465 gallons more to create a 3% solution in your slurry. [50 gallons / 3% = 1665 gallons water, less 1200 gallons = 465 gallons to add].

For contaminated dirt: The general "rule of thumb" is to determine total cubic yards affected. For every 10 cubic yards of dirt, you will need to apply one gallon of Micro-Blaze® Emergency Liquid Spill Control, diluted. Keep the project moist — microbes need moisture to work.

Dilution rates: Usually, heavier weight oils like motor oils and hydraulic fluids use a 3% solution of Micro-Blaze® Emergency Liquid Spill Control mixed with water. Hint: for every 10 gallons of concentrate, dilute to a 3% solution with 333 gallons of water (10 gallons / 3% = 333 gallons water). More is not better – 3% allows the water to help cut up the hydrocarbon molecules.

The LELs of lighter weight and volatile fluids can be knocked down with an application of Micro-Blaze[®] Emergency Liquid Spill Control in a 6% solution. (Dilute every 10 gallons of concentrate with 167 gallons of water; see equation above.)

**CARE SHOULD BE EXERCISED when applying Micro-Blaze® solutions to spills. Boom off spill to prevent run-off. Emergency responders should wear appropriate personal protective equipment per local regulatory protocols and guidelines.

For rates of application for specific situations, please contact your Micro-Blaze[®] distributor or contact Verde Environmental's toll-free number: 800 / 626 –6598 or salesmicro@micro-blaze.com.



State of New Jersey

CHRIS CHRISTIE Governor DEPARTMENT OF ENVIRONMENTAL PROTECTION

BOB MARTIN Commissioner

KIM GUADAGNO Lt. Governor

> Bureau of Case Management 401-05F P.O. Box 420 Trenton, NJ 08625-0420 Phone #: 609-633-1455 Fax #: 609-633-1439

Deborah LaMond Program Manager Phillips 66 1400 Park Avenue, Room BOB S-206 Linden, NJ 07036 November 7, 2012

Re: Discharge to Ground Water Authorization

Phillips 66 Bayway Refinery Linden City, Union County

Program Interest Number: 008282

Dear Ms. LaMond,

This New Jersey Pollutant Discharge Elimination System/Discharge to Ground Water (NJPDES/DGW) authorization is hereby issued under the authority of the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq. and the implementing regulations, N.J.A.C. 7:14A-1 et seq. N.J.A.C. 7:14A-7.5 authorizes the discharge described below to treat a residual oil film associated with a waste oil discharge caused by storm surge from Hurricane Sandy. Pursuant to N.J.A.C. 7:14A-22.4(b)5, a Treatment Works Approval is not required for discharges to ground water authorized pursuant to N.J.A.C. 7:14A-7.5 and a licensed operator is not required pursuant to N.J.A.C. 7:10A-1.10(c)1. The discharge approved through this authorization is a spray application of a microbial formulation. The discharge shall be conducted as proposed in the Discharge to Ground Water Permit-by-Rule Authorization Request, dated November 6, 2012, and as clarified by email dated November 7, 2012. Consistent with N.J.A.C. 7:14A-7.5(b)3ii, the authorized discharge to ground water is not to exceed 180 calendar days. Be advised that the time period for the discharge begins on the day the discharge first occurs and not the date this discharge authorization letter is issued or received. A description of the authorized discharge is provided in Section I below. The authorized discharge shall comply with the requirements of Sections II, III, and IV, farther below.

I. DISCHARGE DESCRIPTION

The authorized discharge is for a single discharge event spanning roughly a two day period in which water will be mixed with 350 gallons of Micro-Blaze® to form a 3% Micro-Blaze® solution. The solution will be applied with hand sprayers to saturate the residual oil film, which covers approximately a six acre area.

The Micro-Blaze®, which consists of spore forming cultures, alcohol ethoxylate, urea, dipotassium phosphate, diammonium phosphate, tetrasodium ethylenediaminetetraacetate, arylene gamma fragrance, and water, will bioremediate the residual oil film. A remedial investigation will be conducted to evaluate impacts from the release at a future date.

II. SYSTEM OPERATION AND MONITORING

Any sampling performed shall be conducted consistent with the methods specified in the most current edition of the Department's <u>Field Sampling Procedures Manual</u>, unless otherwise approved by the Department.

The discharge shall not occur within 10 feet of any surface water body.

The treatment area shall be monitored for evidence of malfunction. Said evidence shall include, but not be limited to: run-off of the solution and ponding.

The discharge shall not have a long term adverse impact on ground water quality, create an unpermitted discharge to any surface water of the State, create a persistent standing, ponded or surface-flowing fluid condition, or cause adverse vapor intrusion to occur.

Pursuant to N.J.A.C. 7:14A-6.2(a)5 and 11, if free product in ground water, vapors or odors in any building, or any malfunction resulting in a potential impact to a receptor are detected and are a result of the discharge authorized by this approval, the discharger will immediately: (1) cease the discharge or make necessary adjustments to the application rate; and (2) repair or mitigate any negative impacts.

III. GROUND WATER MONITORING REQUIREMENTS

Because the application of the Micro-Blaze® is intended to only saturate the residual surficial oil film, no ground water monitoring requirements are associated with this discharge authorization.

IV. REPORTING REQUIREMENTS AND INFORMATION SUBMITTALS

All information associated with the discharge, including a summary of the discharge, volumes discharged, days of discharge, and a summary of any issues encountered, etc., shall be included in a Progress Report and sent to:

> Anne Pavelka, PG, CHMM Case Manager New Jersey Department of Environmental Protection Bureau of Case Management Mail Code 401-05F P.O. Box 420 Trenton, NJ 08625-0420

The record keeping requirements of N.J.A.C. 7:14A-6.6 are applicable to monitoring information resulting from this discharge authorization. Pursuant to N.J.A.C. 7:14A-6.8(e), the results for any sampling done as a result of this discharge, but that is not specified in this authorization, must also be reported as specified above. Any malfunctions or noncompliance should be reported telephone within 24 hours to Anne Pavelka of the Bureau of Case Management at (609) 292-3007, email at Anne.Pavelka@dep.state.nj.us, and in writing within 7 days to the above address using the subject line "DGW Permit-by-Rule Compliance Report."

If you have any questions or concerns associated with this Discharge Authorization, please contact Anne Pavelka of the Bureau of Case Management at (609) 292-3007.

> Sincerely, anne

mountle migliaries Maurice Migliarino, Section Chief

Bureau of Case Management

c: Richard Snyder, LSRP, Conestoga-Rovers & Associates Sam Ezekwo, USEPA